

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION**

JANICE SCOTT,

Plaintiff,

VS.

**THE CHARTER OAK FIRE
INSURANCE COMPANY,**

Defendant.

CIVIL ACTION FILE NO.:
1:20-cv-4420-TWT

AFFIDAVIT OF MICHAEL CANNON

I, Michael Cannon, personally appeared before the undersigned officer, duly
deposes and states the following:

1.

My name is Michael Cannon, I am over the age of eighteen years old, I am of sound mind, and I have personal knowledge of the matters set forth in the affidavit in connection with the above-styled action.

2.

I am a senior industrial hygienist employed with the Forcon International – Georgia Ltd. A true and correct statement of my credentials, qualifications and experience is attached hereto as Exhibit A.

3.

I was retained by Charter Oak to inspect the property located at 1590 Foote Street NE, Atlanta, GA 30307 (the “Property”) to investigate the number of water leaks, the source of the water leaks, and the cause of the water/mold damage to the Property (the “Loss”) and thus have personal knowledge concerning the same.

4.

I was retained as an independent consultant and had never before worked with Jeffrey Teitelbaum.

5.

Following my inspection, I issued a report detailing my findings, a true and correct copy of which is attached hereto as Exhibit B.

6.

During my inspection, I observed that the Property was in poor condition.

7.

During my inspection, I observed a repair from a leak in the water supply line that served the icemaker, the bathroom vanity sink, and the bathroom toilet.

8.

Based on my experience and training, the leak appeared to cause water damage to the drywall behind the refrigerator and associated wall framing.

9.

Based on my experience and training, corrosion on the nail plates indicated that the water leak was long term.

10.

During my inspection, I observed a repair to the water supply line/fitting to the toilet water valve that resulted in mold growth on the drywall inside the wall cavity above the leak, along the baseboard in the bathroom behind the toilet, and mold growth on the subfloor in the crawl space below.

11.

Based on my experience and training the failure of the subfloor behind and to the sides of the toilet indicated that this leak was long term.

12.

During my inspection, I observed that there had been repairs to the plumbing related to the hot water heater and bathtub. There was visible scattered dark mold growth on the drywall in the back right corner of the hot water heater closet that was likely caused by the previous leaks that had been repaired.

13.

Based on my experience and training, the water damage and mold growth observed underneath the hot water closet suggested that the leaks from this area of

the Property had migrated along the subfloor into the adjacent master bedroom, indicating that these leaks were long term.

14.

Based on my experience and training, the overall conditions observed on the subfloor and floor joists from the crawl space beneath the bathroom, kitchen, and hot water heater closet would be indicative of long term, repeated water damage from the plumbing leaks identified.

15.

During my inspection, I observed that, although not related to plumbing leaks, there was evidence that rainwater was infiltrating in and around the side entry door to the kitchen.

16.


Based on my training and experience, wood rot on the door frame molding and rust on the interior side of the metal door's base indicate years of exposure to rainwater.

17.

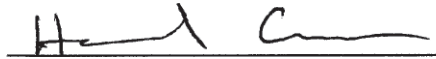
The above personally observed facts and my training and experience form the basis of my opinion that the failure of the original polybutylene plumbing over a period of months resulted in the water and mold damage claimed by Plaintiff.

FURTHER AFFIANT SAYETH NOT.

This 14 day of October, 2021.

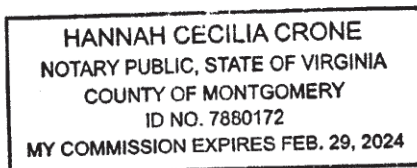

Michael Cannon
Industrial Hygienist
Forcon International Georgia Ltd.

Sworn to before me this
14 day of October, 2021



Notary Public

My Commission Expires: 2-29-2024



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MICHAEL L. CANNON

EDUCATION

Bachelor of Arts in English, University of North Carolina, Chapel Hill, NC, 1978

REGISTRATIONS & CERTIFICATIONS

American Board of Industrial Hygiene, Certified Industrial Hygienist-Comprehensive Practice

- Certificates: # 3715- 1987 to 2005 and # 9188- 2006 to 2012

CONTINUING EDUCATION

- University of North Carolina, Chapel Hill Evening College
 - Analytical Chemistry
 - Organic Chemistry
- Harvard School of Public Health
 - Basic Industrial Hygiene
- University of North Carolina, Chapel Hill-OSHERC
 - Basic Industrial Hygiene
 - Personal Sampling
 - EPA AHERA Inspector Course
 - EPA AHERA Management Planner
 - NIOSH 582 Sampling and Evaluating Airborne Asbestos Dust
- North Carolina State University
 - Industrial Ventilation Conference (Advanced, 1987)
- AIHC Professional Development Courses
 - Radio Frequency/Microwave Radiation Protection
 - Indoor Air Quality and Radon
 - Prevention, Determination and Remediation of Biological Contamination in Indoor Environments
 - Introduction to Chemical/Biological/Radiological Warfare and Consequence Management
- Pathcon Laboratories, Norcross, Georgia
 - Microorganisms in Indoor Air
- Georgia Institute of Technology
 - Respiratory Protection for the Asbestos Abatement Industry
- Condor Geotechnical Services
 - 40-Hour HAZWOPER Evaluation Course
- Virginia Tech
 - HIPAA Awareness and Security Training
- ELB and Associates
 - NIOSH Certified Pulmonary Function Technician Training

CAREER HISTORY

FORCON International – Senior Industrial Hygiene Consultant

Provides consulting and expert witness services for environmental & toxic tort claims and litigation requiring industrial hygiene expertise.

Virginia Tech Environmental Health and Safety, Blacksburg, VA – Manager Industrial Hygiene Services and Medical Surveillance Department

Managed both the industrial hygiene and medical surveillance departments that served the Virginia Tech campus and satellite facilities in the Commonwealth. I was responsible for the supervision of three industrial hygienist and two medical services technicians. Reported to the Assistant Director of Environmental Health and Safety. Duties included review of campus health and safety policies, development of campus programs for industrial hygiene,

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review of new and renovated building drawings for exhaust ventilation controls and other control measures utilizing best management practices, working with Facilities Management in addressing health and safety issues for university operations and working with human resources in reviewing employee accident reports relative to workers compensation claims.

4C Occupational Health and Safety Consultants, Blacksburg, VA & Atlanta, GA

Over 38 years of occupational health and safety experience as a consultant. Assists major corporations with OSHA compliance, industrial hygiene, health and safety training, health and safety program development and workers compensation claims. Provide insurance loss control departments with underwriting risk analysis and industrial hygiene services for their insured's. Consult with law firms as an expert for workers compensation, environmental, property and general liability cases.

Golder Associates Inc., Atlanta, GA – Corporate Health and Safety Officer and Director, Industrial Hygiene

Responsible for corporate health and safety for over 700 employees in the US. Developed a safety and health web page via the company Intranet for communicating company policies and procedures. Reviewed and approved site-specific health and safety plans for RCRA and Superfund projects. Responsible for review of worker's compensation cases. Conducted industrial hygiene and occupational health surveys, health and safety audits, health and safety training, regulatory compliance audits, and personal and area monitoring

Crawford & Company/The FPE Group, Atlanta, GA – Senior Industrial Hygiene Consultant

Provided Industrial Hygiene and Safety consulting services to clients ranging from industrial facilities to municipalities. Supervised sales and marketing staff for promotion of OHS.

Hartford Steam Boiler Inspection & Insurance Co., Atlanta, GA – Southeast Regional Manager, Occupational Health Services (OHS)

Provided Industrial Hygiene and Safety consulting services to clients ranging from industrial facilities to municipalities. Supervised sales and marketing staff for promotion of OHS.

Ennis Lumsden, Boylston and Associates, Inc., Chapel Hill, NC

Manager, Industrial Hygiene Services – Managed a staff of industrial hygiene consultants, including certified industrial hygienists, staff industrial hygienists and industrial hygiene technicians.

HIGHLIGHTED EXPERIENCE – RISK MANAGEMENT

Insurance Underwriting Risk Analysis

Performed risk analysis of major corporations and contractors relative to insurance coverages that included general liability, professional liability, pollution liability, products liability, completed operations, inland marine property, and workers' compensation. Companies included petroleum refineries, chemical manufacturers, chemical distributors, hazardous waste processors, TSD's, transportation firms, asbestos abatement contractors, and lead-based paint abatement contractors. Surveys included an overview of business operations, administrative controls, company experience and specific controls in place for the coverages being evaluated. The report provided an opinion of risk and recommendations for improvement to the insurance underwriter. Clients included AIG, Reliance National and ECS.

Loss Control Surveys

Conducted both property and casualty loss control surveys for a broad range of insurance companies as well as self-insured corporations. Used survey formats provided by the insured or those developed for the client. Provided various levels of reports ranging from checklist to full reports with recommendations for reducing risks. Clients included AIG, Reliance National, The Hartford, Allstate, State Farm, Travelers, Royal.

Technical Loss Analysis

Evaluated workers' compensation claims relative to occupationally related disease and injury. Provided guidance to claims administrators for determining the validity of the claim. Performed field evaluations where necessary (e.g., air monitoring, surveys, IH audits, etc.) to determine exposure risks. Interfaced with occupational health physicians and law firms in resolving the claims.

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Workers Compensation Claims Management

Assisted VT University Human Resources Department by conducting review and investigation of employee accident reports. The review and investigation would include but not limited to discussions with the injured employee and their supervisor/department head, evaluation of the conditions and operations that were related to the accident including any relevant monitoring that would be needed and a determination of whether the reported accident was work related.

HIGHLIGHTED EXPERIENCE - SAFETY

Industrial and Commercial Building Safety Audits

Conducted over 800 safety audits to evaluate corporate safety and health programs relative to current loss trends and regulatory compliance. Emphasized management and employee responsibility for achieving improvements in loss ratios. Involved with several national self-insured accounts in developing a comprehensive safety/health and loss prevention program. These accounts were managed to achieve low loss rates that in turn had a positive effect on company revenue performance. Designed the program to assign losses to individual departments; this program increased management awareness and improved company loss ratios relative to workers' compensation costs. Companies serviced included chemical manufacturing, paper and pulp, textile, furniture manufacturing, medical facilities, metal fabrication, microelectronics and general/asbestos abatement contractors.

Industrial Safety and Health Training

Conducted safety and health training to meet company objectives and regulatory compliance. Training has included 8- and 24-hour HAZWOPER training, lockout/tagout, confined space entry, hazard communication, lab safety, personal protective equipment, accident investigation techniques, job safety analysis and respiratory protection.

Asbestos Building Materials Evaluations/Project Management

Acted as owner representative on major abatement projects overseeing contractor activities to assure conformance with project specifications and regulatory compliance. Conducted comprehensive facility evaluations for asbestos containing building materials for First Union National Bank in North and South Carolina, First Union Mortgage Corporation throughout the U.S., Carolina Telephone and Telegraph, Velsicol Chemical Corporation, The Bibb Company and La-Z-Boy Chair Company. The data from these surveys was used to establish an abatement timeline and an operation/maintenance program. Conducted training of custodial and maintenance personnel in accordance with OSHA and EPA standards.

HIGHLIGHTED EXPERIENCE — INDUSTRIAL HYGIENE

Commercial Indoor Air Quality/Sick Building Syndrome Surveys - Fungi, Bacteria, Endotoxin, Volatile Organic Compounds, Formaldehyde and Nicotine

Provided support to University Facilities Management with regards to fungi (mold) issues related to water damage and elevated relative humidity conditions. Assessed conditions in both campus office and mechanical spaces. Recommendations were made for remedial actions for both removal of mold contaminated materials and correcting the moisture problem.

Conducted comprehensive indoor air quality assessments for commercial banking, insurance companies, hospitals, airline training center, telecommunications companies and computer support service centers. Services have included qualitative and quantitative analysis of building conditions including HVAC system review. Occupant questionnaire and interviews were conducted and evaluated to pinpoint symptoms and potential causes of building-related issues. Air monitoring for VOC's, formaldehyde, carbon monoxide, carbon dioxide, nicotine as a marker for cigarette smoke and bioaerosols was conducted. Information gathered from these evaluations have resulted in remedial actions that have included HVAC system improvement, substitution of janitorial and pest control chemicals, employee work practice improvements, and office ergonomic design modifications.

Commercial Building Indoor Air Quality - Odor Evaluations

Investigated an odor complaint of a campus research building related to the use of ethyl mercaptan the odorant associated with the natural gas smell. Building had history of reported gas odors. Interfaced with facilities

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management, building management representatives, research principles and students to track odor events. Conducted smoke test on the strobic exhaust system to determine if there was re-entrainment of exhaust gases from lab hoods back into the HVAC system. During a response to an odor event discovered that the vacuum system exhaust to the lab hoods exhausted near the air intake to the HVAC system. Corrective action was taken with the aid of facilities and the odor issue was abated.

Campus research building reported that the kitchen exhaust from a nearby dining hall was entering the building exacerbating asthma symptoms of some occupants. Interfaced with facilities management, building management representatives, research principles and students to track odor events. Conducted particulate and VOC air monitoring in an attempt to characterize the potential exposure to the kitchen exhaust in the research building. A smoke test was performed to determine potential pathways for the kitchen exhaust entering the research building. Incremental actions were then taken in an effort to reduce infiltration of the kitchen exhaust into the research building.

Campus roofing project resulted in the odor from the roof adhesive entering the building. Interfaced with facilities management, building management representatives, professors and students to track odor events. Conducted meetings with building occupants and facilities management to determine potential pathways for the adhesive odor to enter the building. Identified potential odor pathways, e.g. abandoned exhaust stacks on the roof, and these were sealed. Also revamped the notification procedures for roof related projects going forward to better communicate the impact of these projects on the indoor environment.

Conducted area air monitoring in a multi-building facility to screen for odors using SUMA canisters (vacuum containers) and diffusion badges for formaldehyde. Collected representative 8-hour samples in complaint, non-complaint and HVAC intake areas to characterize odors within the building relative to the installation of floor coverings. Analysis performed using a GC-Mass Spectrophotometer was able to achieve detection levels in the parts per billion range for a library of organic compounds. Compared results to current OSHA permissible exposure limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs®), and the American Industrial Hygiene Association's- Odor Thresholds for Chemicals with Established Occupational Health Standards.

Industrial Noise Surveys

Conducted noise surveys on campus related to the use of the VT-Corp of Cadets Skipper Cannon. Determined the use of hearing protection for the cadets operating the cannon. Conducted numerous noise surveys for a variety of industries that have included paper and pulp, petro-chemical, concrete pipe processing, furniture manufacturing, data processing, textile manufacturing, and transportation services. These surveys have been conducted to determine compliance with OSHA standards for noise and hearing conservation and to provide supporting data for defense in workers' compensation claims. Environmental noise surveys have included construction sites, manufacturing facilities, outdoor entertainment events, and nightclubs. The data gathered for these surveys have been used to determine environmental impact and compliance with federal, state, and local community noise regulations and to provide supporting data in defense of environmental noise complaints.

Industrial Power/Steam Boiler - Coal Dust, Crystalline Silica and Inorganic Arsenic Exposure Monitoring

Conducted environmental air monitoring for coal dust (PM10) and respirable crystalline silica in response to campus coal dust concerns at a nearby dormitory. Air monitoring was performed at various locations on campus including the dormitory in question to evaluate potential impact of the power/steam boiler coal yard operations on air quality. Results of the test were provided to the parties of interest.

Conducted air monitoring for respirable crystalline silica for fly ash exposures from coal fired power boilers associated with paper mills during normal work activities, e.g. periodic inspections, compressed air lancing and outages. Sand blasting operations at various metal fabrication facilities for surface preparation, the removal of old paint finishes and removal of oxidation (rust). Exposure monitoring was conducted both outside and inside the air-supplied shroud to determine the effectiveness of the sand blasting booth and respirator. Brick manufacturing facilities to document the use of sands containing silica for decorative purposes on the production line. Conducted air monitoring at a glass recycling facility that produced reflective powders for highway paint applications to confirm that no respirable crystalline silica was present as a result of crushing automobile windshields.

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Conducted inorganic arsenic air monitoring for coal fired power facilities in Georgia during boiler outages. Provided twenty-four hour turnaround on sample analysis in order to support timely evaluation and updating of work practices, personal protective equipment and ventilation controls.

Cluster Disease Studies - Public School and Power Lawn Equipment Manufacturing

Conducted a cluster disease study for potential high rate of cancers among schoolteachers at a public school in East Tennessee. Conducted an inventory of potential carcinogens at the school, reviewed public records for the property to determine previous use, conducted interviews with the administration and faculty, conducted air, surface and water sampling for suspect carcinogens that included but not limited to radon, methylene chloride, formaldehyde and benzene. Interacted with

NIOSH who was studying the prevalence of breast cancers among schoolteachers. Conducted a thorough review of the IARC monographs and cancer rates/mortality statistics for the counties in this region of the state. Determined that there was no significant exposure to carcinogens at the school and that the rate of cancer at the school was consistent with the cancer rates for this region of the state. A cluster of birth defects were reported at a power lawn equipment company in Georgia.

Coordinated with NIOSH on behalf of the company to conduct an investigation to determine if there was a link between the work environment and the birth defects cluster. Reviewed the chemical inventory, the material safety data sheets and conducted air monitoring for solvents that were possibly linked to the reported birth defects. NIOSH determined there was no link between the work environment at the power lawn equipment company and the reported birth defects cluster.

Metal Fabrication Operations - Workplace Noise Exposures, Welding Fume Exposures (metals and gases) and Dermatitis from Cutting Fluids and Coolants

Evaluated air contaminant and noise exposures at large-scale metal fabrication operations. Air contaminant exposures have included metal fume from plasma and laser cutters, welding fume from assembly operations, oil/coolant mists from CNC/machining, solvent exposures from spray painting, total particulates from powder coating and acid/caustic mists from metal treatment operations. These surveys have led to the development of work practice programs, medical surveillance guidelines, hearing conservation programs, effective exhaust ventilation controls and hazard reduction relative to raw material/chemical substitution.

Paper and Pulp Industry and WasteWater Treatment Plants - Hydrogen Sulfide/Sulfur Compounds Exposure and Odor Monitoring

Conducted extensive air monitoring for hydrogen sulfide/sulfur compound related to workplace exposures and odor complaints at Paper and Pulp mills using both OSHA and EPA methods. Characterized sulfur compound odor issues over the plant site as it related to complaints. Developed action plans and control strategies to reduce workplace and odor exposures to these sulfur compounds.

Conducted evaluation of a wastewater treatment facility in Florida for hydrogen sulfide to determine feasibility of removing walls around the screen room. The wastewater facility was located less than 30 feet from the property boundary to a public school. Recommendations were made regarding emissions control options.

Foundry Operations - Lead, Cadmium, Respirable Crystalline Silica, Formaldehyde, Phenol, Heat and Noise Exposures

Evaluated air, noise and heat stress exposures at an iron ductile pipe foundry, a brass foundry, marine parts foundry and an aluminum reprocessing/recycling facility. Air exposures evaluated included respirable crystalline silica, lead, formaldehyde, phenols and metal fume. Engineering controls, work practices and personal protective equipment were evaluated. Improvements to these controls were recommended to minimize work place exposures to air contaminants, noise and heat. Medical surveillance guidelines were provided for related metal fume exposures e.g. lead, cadmium.

The marine parts foundry evaluation was performed on behalf of the worker's compensation carrier to determine if the employee had been exposed to lead and cadmium to cause renal injury. Air and surface testing was conducted

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to determine workplace exposures. Consulted with the carrier regarding biological monitoring for determination of current blood lead levels and long-term ZPP levels. Determined that his smoking may contribute up to 50% of his blood cadmium levels.

Truck, Bus and Emergency Vehicle Manufacturing - Workplace Noise Exposures, Diesel Particulate Monitoring, Coal Tar Pitch Volatiles, Carbon Monoxide, Paint/Cleaning Solvents and Welding/Torch Cutting Metal Fume

Evaluated air contaminant and noise exposures at major truck and bus manufacturing facilities in the Southeast US. Air monitoring has included carbon monoxide, elemental carbon and CTPVs during truck start up and dynamometer testing, welding and torch cutting metal fume and gases in frame manufacturing, paint/cleaning solvents during truck and bus body preparation and solvent exposures during the application of undercoating.

Metal Scrap Yards - Workplace Metal Fume Exposure From Torch Cutting

Conducted air-monitoring surveys to evaluate workplace lead and metal fume exposures. Established lead compliance programs in accordance with OSHA standards including blood lead monitoring. Provided respiratory protection training and fit testing. Conducted an in-depth study to determine sources of workplace lead exposure; this study included scrap testing, soil testing, comparative air monitoring and torch tip evaluations. Determined that new torch tips with brass inserts could produce concentrations of lead in excess of the OSHA action level.

Textile Manufacturing - Cotton Dust

Conducted in-depth cotton dust monitoring surveys to evaluate employee exposures and exhaust ventilation controls. These services have included exhaust ventilation control isokinetic air monitoring for determining filtration efficiencies and optimum design criteria. Documented the influence of total dissolved solids from overhead spray humidifiers on cotton dust air concentrations in various departments of the mill. OSHA has utilized his expertise as a third-party consultant to resolve exhaust ventilation problems for companies under citation in both Regions IV and VI.

Textile Finishing

Performed air monitoring to evaluate workplace exposures in dye and finishing operations. Air contaminants have included benzidine-based dyes, phenols, formaldehyde, aromatic and chlorinated hydrocarbons, acids and caustic compounds. These evaluations have been a key element in establishing medical surveillance guidelines, personal protective equipment requirements, and hazard communication programs.

Microelectronics Industry - Tin, Lead, Rosin Core Pyrolysis Products, Volatile Organic Compounds and Inorganic Acid Mists

Conducted air monitoring to evaluate workplace exposures to rosin core pyrolysis products and lead from hand and wave solder operations, solvent exposures from ultrasonic vapor degreasers, formaldehyde exposures from solder and assembly operations, and acid mist exposures from cleaning operations. Developed personal protective equipment and work practice procedures to minimize employee exposures to lead from wave solder dross cleaning.

Pulmonary Function Testing - Textiles and Poultry Processing

In addition to air monitoring for dust related workplace exposures, have conducted over 50,000 pulmonary function tests, which have involved the evaluation of several parameters that have included FEV1, FVC.

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March 11, 2019

Mr. Jeffrey Teitelbaum
Claim Professional
Travelers
Southern Claim Service Center
PO Box 430
Buffalo, New York 14240-0430

RE: Ms. Janice Scott- Insured
1590 Foote Street NE
Atlanta, Georgia 30307
Claim No. HL95871
Water Damage Causation Investigation
Forcon No. G19336

Dear Jeffrey,

On or before September 29, 2018 Ms. Scott discovered a water leak coming from the water supply line to the bathroom toilet. In addition to the water leak the flooring behind and to each side of the toilet base had partially collapsed. Ms. Scott contacted Travelers and filed a claim. Travelers conducted an initial claims investigation. During the claims investigation the insured reported that there had been previous water losses from water lines serving the refrigerator icemaker and the hot water heater. Travelers then contacted Forcon to conduct an investigation to determine the number of water leaks, the sources of these water leaks and the water/mold damage that was caused by these water leaks.

Observations/Discussion:

On March 5, 2019 the following observations were noted during this investigation:

- 1) The Scott house was constructed in 1988. It is an 1120 ft² bungalow style house with three bedrooms, one bath, a kitchen, dining room and living room. The timber frame structure was built over a crawl space foundation constructed of concrete masonry units (CMU's) with support piers. The lot sloped from the back left corner (north) to the front right corner south. Therefore the foundation wall from the back left corner (north) to the front left corner (west) and to the back right corner (east) was below grade. The approximate depth of the foundation below grade ranged from approximately 2.5 feet in the back north corner to 1 foot in the front west corner.

Exhibit B

Providing Forensic Consulting and Technical Services since 1984

Claim No. H9L5871

Date of Investigation: March 5, 2019

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The exterior finishes included vinyl lap siding, perforated vinyl soffits/eaves and three tab fiberglass shingles laid over a gabled roof. The eaves were not guttered and allowed rainwater from the roof to run-off directly next to the foundation. There was a covered front porch and a side entry porch constructed of pressure treated lumber.

The interior finishes included painted drywall walls and textured drywall ceilings, sheet vinyl flooring in the living room, dining room, kitchen, bathroom, hallway and back right corner bedroom with carpet in the two bedrooms on the left side of the house.

The house had forced air gas fired heating and refrigerant air conditioning. The supply vents were in the ceiling and the return air plenum was located in the hallway wall beneath the air handler. The location of the supply vents would not have subjected the supply ductwork serving this HVAC system to flooding from the reported water losses. The return plenum was part of the wall and support framing beneath the air handler, therefore the air handler would not have been subject to flooding from the reported water losses. It was noted that the white 1 inch PVC condensate drip line ran from the air handler through the subfloor into the crawl space and out to the exterior foundation wall on the right side of the house. No apparent leaks were observed coming from the condensate drip line.

- 2) The house was in a state of disrepair. The exterior door frame molding to the side entry door to the kitchen was severely weathered and had visible wood rot at the base of both sides of the door frame. An exterior door threshold had been added to drain rainwater away from the base of the exterior metal door. The base of the metal door was rusted primarily on the interior (kitchen) side indicating long-term water exposure and likely water infiltration into the kitchen. There was an area of vinyl siding that had been repaired (~ 4 x 6") on the back exterior wall using duct tape. However, the duct tape had deteriorated and exposed the foam board sheathing beneath it to the weather.

The interior of the house also reflected conditions of disrepair that included a gap in vinyl flooring at a door threshold, water stains on the drywall ceiling around supply diffusers in the living room, hallway to bathroom and back master bedroom, rusted supply diffusers, unfinished ceiling drywall renovation in the back right bedroom (master), un-repaired drywall from previous plumbing water leaks behind the refrigerator, kitchen sink cabinet and behind the bathtub where the hot water heater was located.

- 3) The area where the icemaker water line leak occurred was behind the refrigerator and shared a common wall with the bathroom behind the toilet and the bathroom vanity sink. The refrigerator was pulled out and revealed that the drywall had been removed (~2' x 2') to access the water lines. The original water lines were gray polybutylene with copper fittings. Polybutylene is recognized in the plumbing/building industry for pipe failure that results in water leaks. There was a mix of water supply lines used for repair behind the refrigerator and kitchen sink cabinet that included PVC and PEX connected with push type fittings. There had been a repair to the water line that was assumed to have served the refrigerator icemaker using white PVC. However, this repair did not include a valve to reconnect the icemaker to the refrigerator therefore the icemaker was not connected to a water supply at the time of this investigation. It was noted that the water line assumed to be for the icemaker also served as a supply line to the bathroom toilet and vanity sink cabinet. There was significant drywall and insect related debris on top of the sill plate in the wall cavity behind the refrigerator. There was scattered visible mold growth in the wall cavity, e.g. wall studs, sill plate and drywall, in

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proximity to the PVC water line repair. The two nail plates, one still attached to the wall stud and one lying at the bottom of the wall cavity, were severely corroded indicating long-term exposure to water. This mold growth and corrosion of the nail plates in this wall cavity area would likely be from the refrigerator icemaker water line leak. It was noted that the flooring in and around the refrigerator appeared stable at the time of this evaluation indicating that water from this loss location had not caused significant water damage to the subfloor. Wood moisture meter measurements were collected from the exposed wall framing and flooring using a Protimeter SurveyMaster Model POL 5386 Dual Function Moisture Meter. Moisture meter measurements were taken with the Heavy Duty Moisture Probe whereby the metal electrode tips are pushed into the wood surface and the percent moisture content (%MC) of the wood is measured. The range of measurements for the pin probe are as follows: 7-16.9% Dry, 17-19.9% At Risk, 20-99.9% Wet. The Search Mode (REL) was also used to detect moisture in relative terms up to $\frac{3}{4}$ of inch beneath the surface of the vinyl flooring regardless of surface moisture, e.g. condensation, which has little effect on readings. Therefore, technically the REL measurement would detect moisture within the wood subfloor beneath the vinyl flooring. The ranges of measurements for the REL mode are as follows: 70-169 Dry, 170-199 At Risk, 199-999 Wet. Moisture meter measurements using the pin probe taken from the wall framing and drywall behind the refrigerator, from the drywall behind the kitchen sink and from the base of the kitchen sink cabinet measured dry during this investigation. Moisture meter readings collected using the scan mode from the flooring in and around the refrigerator and out in front of the kitchen sink cabinet measured dry during this investigation. Please see the photographs in Attachment I for details of these observations and moisture meter measurements.

- 4) The toilet water supply line leak appeared to have occurred at or near the place where the water line went through the drywall penetration into the bathroom. The repair had been made with approximately 5" to 6" of blue PEX that was protruding out of the wall behind the toilet. There was visible mold growth on the backside of the drywall above the area where the toilet water supply line was located and on the baseboard beneath this location that was likely caused by this loss. The floor at the back of the toilet had failed due to long-term water exposure that resulted in the failure/rot of the OSB subfloor. The current deflection of the floor on either side of the toilet measured from the level floor was 1.5" to 2". The toilet base had wedges installed between it and the floor to keep it stable. The toilet did not rock indicating that it was seated on the wax ring. Inspection from the underside of the toilet found that the drain line was placed next to a floor joist and was secured with wood block and metal strap. Moisture meter readings from behind the toilet measured dry at the time of this evaluation. However, the moisture meter readings out in front and to the right of the toilet running toward the bathtub measured wet approximately 2' to 2.5' out from this fixture. These wet moisture meter measurements in front of the toilet would indicate that there might be a leak from the toilet wax ring seal.

The vinyl flooring in front of the bathroom vanity sink cabinet could be pulled back to inspect the conditions beneath it. There was visible wood delamination/rot of the subfloor indicating that this area of flooring had been subject to long term moisture possibly due to a water leak from the cold water line serving this vanity sink cabinet as discussed in Section 3 of this report. Please see the photographs in Attachment I for details of these observations and moisture meter measurements.

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- 5) The opening to the hot water heater closet behind the bathtub had been sealed with polyethylene and tape. The hot water heater was installed with a containment drain pan that drained into the crawl space. The pressure relief valve was piped to a drain line that was connected to the bathtub drain. The drywall behind the bathtub had been removed exposing the water supply lines to the bathtub and hot water heater as well as the drain lines to the bathtub. The subfloor around the bathtub drain line was open to the crawl space. There was evidence of repairs to the polybutylene water lines serving the bathtub and hot water heater using PVC and CPVC pipe connected with push type fittings. There was an active water leak coming from the connector to the hot water side of the bathtub-mixing valve that was dripping onto the sill plate below. There was visible scattered dark mold growth on the drywall in the back right corner of the hot water heater closet that was likely caused by the previous leak(s) that had been repaired. Moisture meter readings from the flooring around the containment pan to the hot water heater measured dry at the time of this investigation. The exposed wood framing and drywall that remained measured dry with the moisture meter at the time of this investigation. The water stain on the sill plate beneath the water drip measured wet. The water damage to this hot water heater closet was likely caused by the previous leaks that had been repaired. The water leak from the connector to the hot water side of the bathtub-mixing valve had not progressed to the point of significant water damage or mold growth. This leak needs to be repaired. Please see the photographs in Attachment I for details of these observations and moisture meter measurements.
- 6) The crawl space had no vapor barrier over the soil or fiberglass insulation between the floor joists. There were miscellaneous contents scattered over the crawl space soil. There was evidence of water infiltration along the foundation wall between the north and west corners of the house that was below grade. This evidence included water stains on the CMU's, white efflorescence on the CMU's and muddy soil along the base of this foundation wall. There was visible mold on the subfloor and floor joists near this portion of the foundation that was likely caused by this water infiltration.

There was visible water damage and mold growth on the subfloor and floor joists in and around the plumbing drain and water lines associated with the water losses discussed under Sections 3, 4 and 5 of this report. It was noted that the moisture meter measurements that measured wet in the bathroom floor corresponded with at risk to wet conditions when measured from the crawl space side of the bathroom subfloor. The water damaged and collapsed subfloor behind and to the sides of the bathroom toilet was visible from the crawl space.

There was visible water damaged and mold contaminated subfloor and floor joists that extended from the area beneath the hot water heater closet into the back right corner bedroom (master bedroom). Moisture meter measurements from the water stained subfloor and floor joists in and around the hot water closet measured dry to at risk.

The flexible dryer vent hose to the clothes dryer had come apart and was exhausting into the crawl space. The hot moist air from this dryer vent hose would create conditions favorable for mold growth in the crawl space.

There was standing water in a used tire and other contents beneath the bathroom toilet probably indicative of the water leak from the toilet water supply line.

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7) Please see the photographs in Attachment I for details of these observations.

Conclusions:

Based on the repairs observed, the water leaks that occurred at this property were the result of the failure of the original polybutylene plumbing. The location of these leaks were identified by the repairs that were made using alternative water supply lines that included PEX, PVC and CPVC. The following repairs that were identified included the following:

- The water supply line (white PVC) that served the icemaker, the bathroom vanity sink and the bathroom toilet. This leak appeared to cause water damage to the drywall behind the refrigerator and associated wall framing. The corrosion of the metal nail plates indicates that the water leak was long term, e.g. months.
- The water supply line/fitting to the toilet water valve was repaired with blue PEX. This leak resulted in mold growth on the drywall inside the wall cavity above the leak, along the baseboard in the bathroom behind the toilet and mold growth on the subfloor in the crawl space below. This long-term leak, e.g. months, caused the failure of the OSB subfloor behind and to the sides of the toilet.
- There had been repairs to the plumbing related to the hot water heater and bathtub. CPVC had been used to repair a water line serving the hot water heater and white PVC to repair the cold water supply line to the bathtub-mixing valve. The drywall had been removed from behind the bathtub evidently to facilitate the repairs. There was visible scattered dark mold growth on the drywall in the back right corner of the hot water heater closet that was likely caused by the previous leak(s) that had been repaired. There was an active water leak coming from the connector to the hot water side of the bathtub-mixing valve that was dripping onto the sill plate below. The water leak from the connector to the hot water side of the bathtub-mixing valve had not progressed to the point of significant water damage or mold growth. This leak needs to be repaired. The water damage and mold growth observed underneath the hot water closet indicated that the leak(s) from this area of the house had migrated along the subfloor into the adjacent master bedroom. The conditions observed both in the hot water heater closet and in the crawl space would indicate these leak(s) were long term, e.g. months.
- Although the toilet base was stable on the bathroom floor at the time of this inspection, there were wedges in place around the toilet base that indicate that it had been unstable at some point in time in the past. This instability may have compromised the wax seal. Wet moisture meter measurements in front the toilet collected during this investigation would indicate that there might be a leak from the toilet wax ring seal.
- The overall conditions observed on the subfloor and floor joists from the crawl space beneath the bathroom, kitchen and hot water heater closet would be indicative of long term, repeated water damage from the plumbing leaks identified.
- Although not related to the plumbing leaks, there was evidence that rainwater was infiltrating in and around the side entry door to the kitchen. This was caused by years of exposure to rain

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water based on the wood rot observed at the base of the doorframe molding and the rust on interior side of the base of the metal door.

Additional conditions contributing to mold growth in the crawl space include long-term foundation rain/ground water infiltration and the dryer vent exhausting into the crawl space.

If you have any questions or require further assistance please give me a call at 678-427-2403. We appreciate the opportunity to be of service.

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A handwritten signature in black ink, appearing to read "Michael L. Cannon". The signature is fluid and cursive, with the first name "Michael" being more prominent.

Michael L. Cannon
Senior Industrial Hygienist

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ATTACHMENT I PHOTOGRAPHS



Photograph 1- Front South to Southwest Elevation of Insured's House – Note: Sloped Grade from Left to Right

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Photograph 2- Side Entry Door to Kitchen with Weathered Door Frame Molding



Photograph 3- Right Side of Door Frame Molding Shown in Photo 2 with Visible Wood Rot- Note: Door Threshold and Door Threshold Draft Cover

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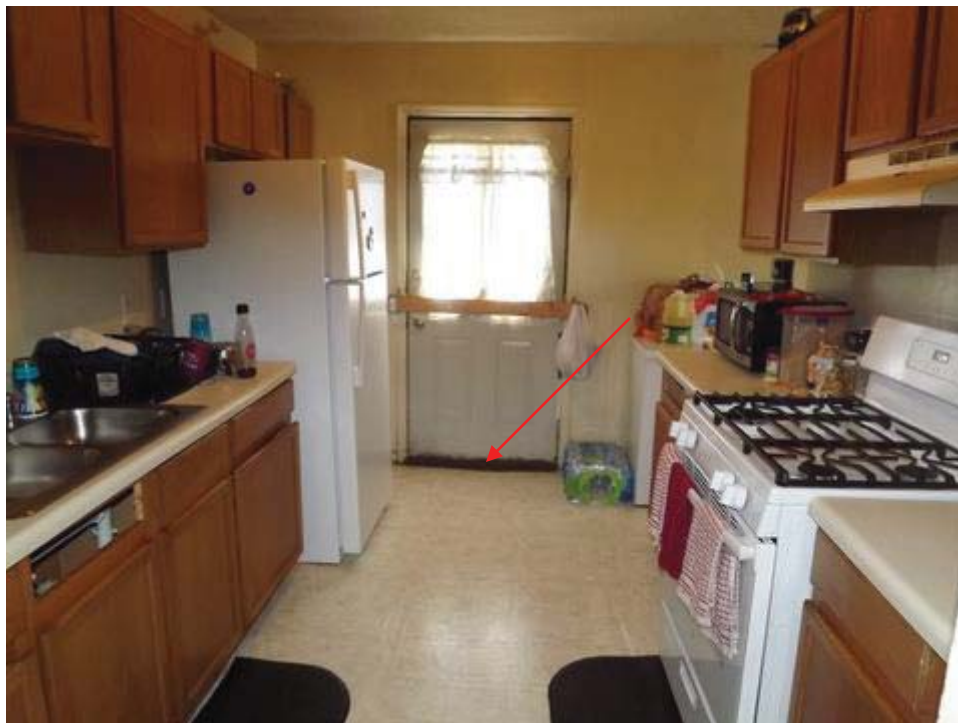


Photograph 4- Wood Rot on Left Side of Door Shown in Photo 2



Photograph 5- View of Raised Door Threshold to Divert Rainwater Away from Base of Entry Door Shown in Photo 2

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Photograph 6- Visible Rust at Base of Side Entry Door Shown in Photo 2



Photograph 7- East (Left) and North (Right) Corners of the Hose- Note: Slope of Grade and Repaired Area of Vinyl Siding

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Photograph 8- Closer View of Deteriorated Repair of Vinyl Siding Shown in Photo 7



Photograph 9- View of North/Northwest Side of House With No Gutters

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Photograph 10- West Corner of House Showing Amount of Foundation Wall Above Grade



Photograph 11- Living Room with Water Stain Around Supply Diffuser in Ceiling

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Photograph 12- Dirty/Rusted Supply Diffuser in Dining Room



Photograph 13- View of Drywall Removed Behind Refrigerator in Kitchen with Water Line Going to Toilet Supply Line

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Photograph 14- White PVC Water Line Repair for Icemaker- Note: This Cold Water Line Services the Toilet Supply and Bathroom Vanity Sink. Original Polybutylene Plumbing Shown with Corroded Nail Plate on Wall Stud and Loose Nail Plate in Wall Cavity Below



Photograph 15- Closer View of Repair Shown in Photo 14 from Behind Bathroom Vanity Sink (Gray Pipe to Sink)- Note: Red Pex Repair to Left

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Photograph 16- Side View of Repair From Photo 14 Looking in Direction Toward Toilet Supply Line- Note Mold Growth on Back of Drywall

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Photograph 17- Closer View of Nail Plate Shown in Photo 14 with Debris on Sill Plate

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Photograph 18- View of Toilet Supply Line Where It Exits to Bathroom with Visible Mold Growth Cased By Loss At This Location

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Photograph 19- View of PEX Repair to Toilet Supply Line in Bathroom



Photograph 20- Example of Dry Moisture Meter Reading from Drywall in Wall Cavity Beneath Icemaker Repair with Visible Mold Growth and Debris

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Photograph 21- Dry Moisture Meter Reading From Wall Cavity Beneath Toilet Water Supply Line with Visible Mold Growth Above



Photograph 22- Dry Moisture Meter Reading from Floor Beneath Refrigerator

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Photograph 23- Un-Attached Icemaker Water Line



Photograph 24- Dry Moisture Meter Reading from Drywall Beside Water Lines To Kitchen Sink

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Photograph 25- Dry Moisture Meter Reading from Shoe Molding Front of Kitchen Sink Cabinet

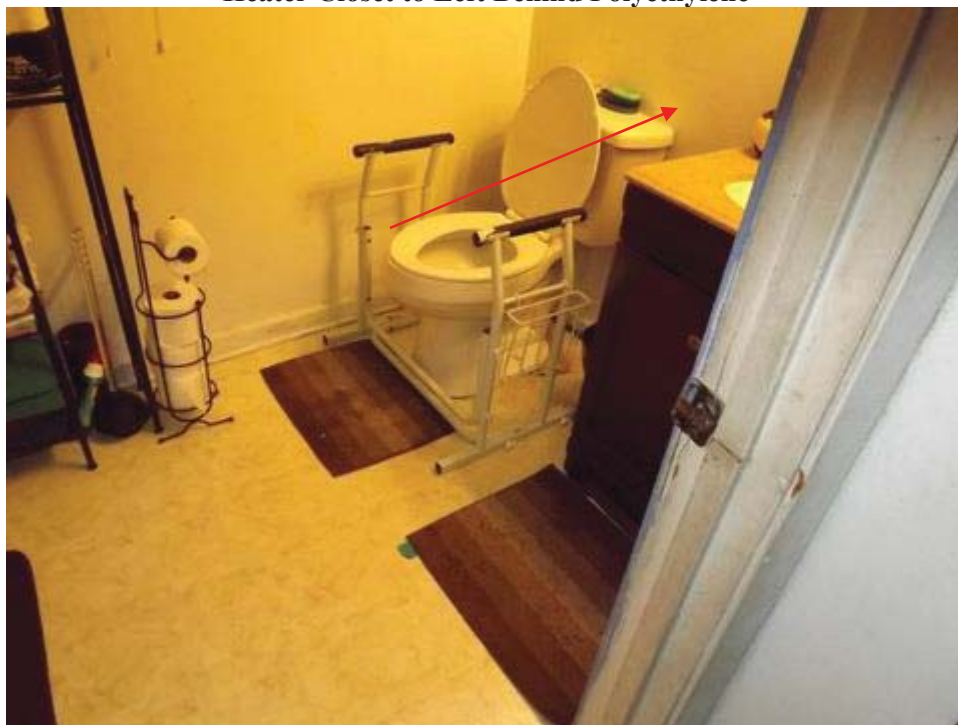


Photograph 26- Dry Moisture Meter Reading from Floor In Front of Kitchen Sink

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Photograph 27- Hallway Leading to Bathroom with Laundry Closet to Right and Hot Water Heater Closet to Left Behind Polyethylene



Photograph 28- Bathroom Toilet and Vanity Sink Cabinet Along Common Wall to Kitchen

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Photograph 29- 1.5 " Deflection in Floor to Right and Behind Toilet Base

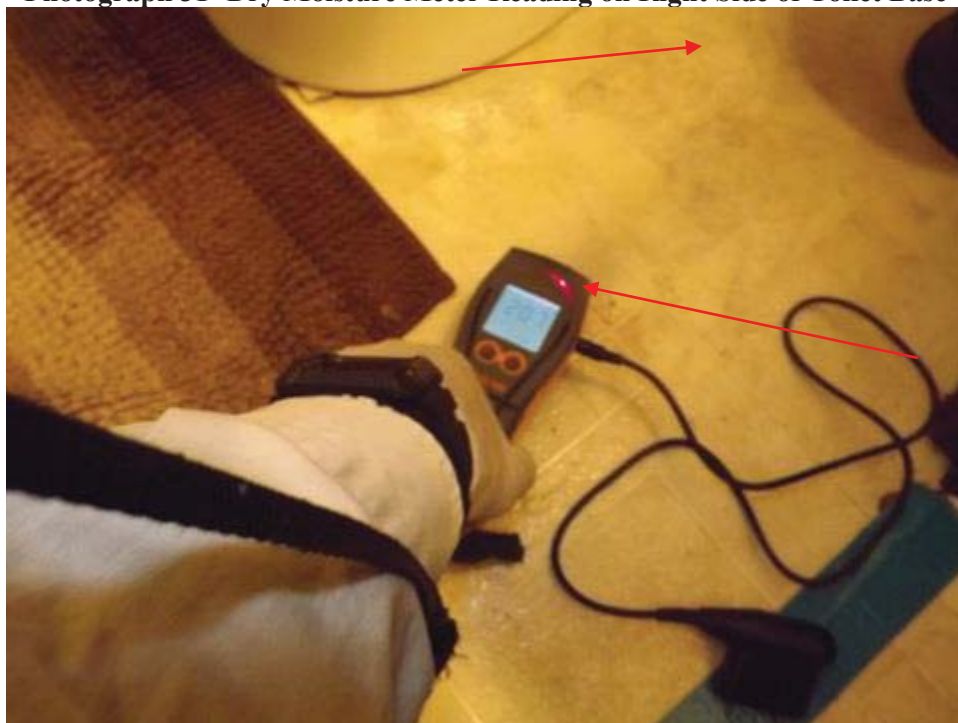


Photograph 30- 2.0" Deflection in Floor to Left and Behind Toilet Base

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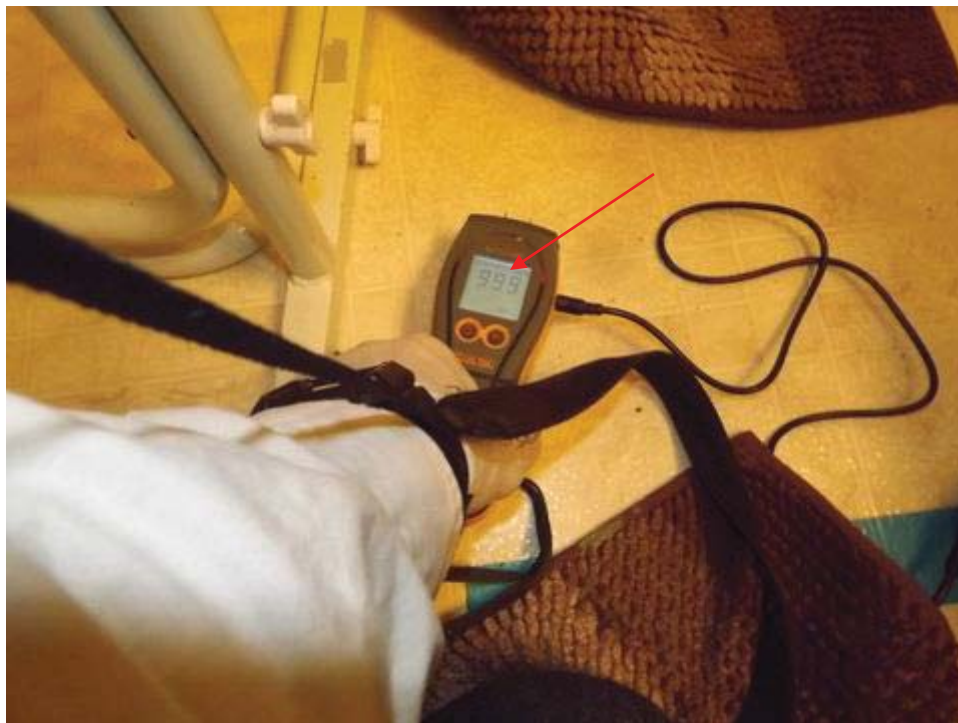


Photograph 31- Dry Moisture Meter Reading on Right Side of Toilet Base

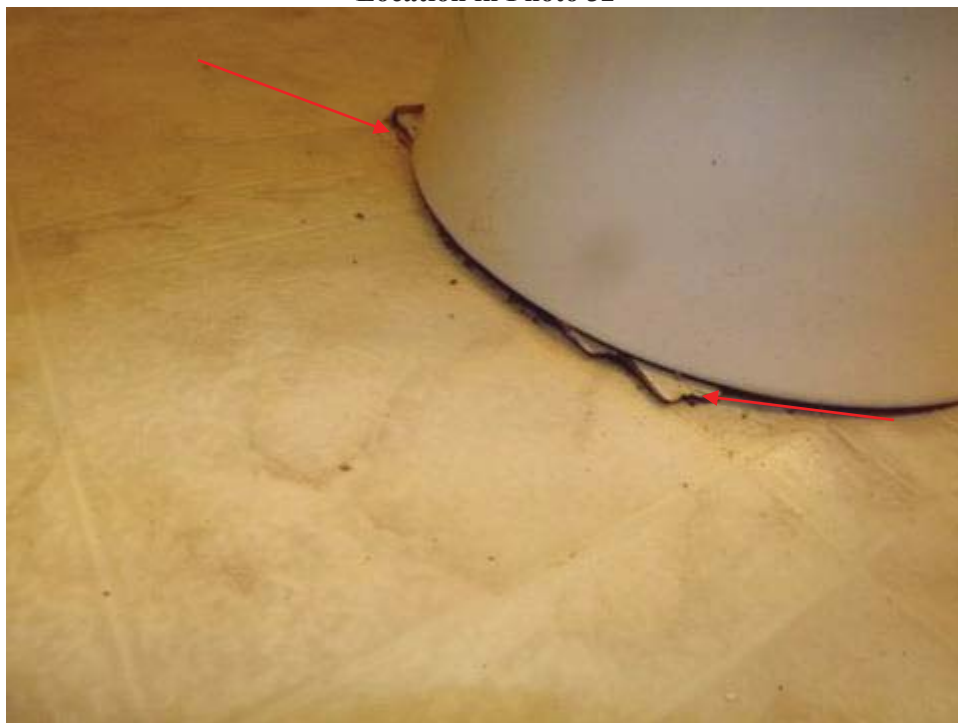


Photograph 32- Wet Moisture Meter Reading on Right Side of Toilet Base Approximately 12" from Location Shown in Photo 31

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Photograph 33- Example of Wet Moisture Meter Reading Approximately 12" from Measurement Location in Photo 32



Photograph 34- Wedges Under Front of Toilet Base

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Photograph 35- Wet Moisture Meter Reading in Front of Toilet Base



Photograph 36- Wet Moisture Meter Reading on Left Side of Toilet Base with Wedge Beneath Back of Toilet Base

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Photograph 37- Wet Moisture Meter Reading To Left (Front) Approximately 1.5" from Location in Photo 36



Photograph 38- Loose Vinyl Flooring in Front of Bathroom Vanity Sink Cabinet with Blue Tape Repair

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Photograph 39- Dry Moisture Meter Reading from Water Damaged Subfloor In Front of Bathroom Vanity Sink Cabinet

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Photograph 40- Dry Moisture Meter Reading from Delaminated Subfloor to Left of Bathroom Vanity Sink Cabinet

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Photograph 41- Polyethylene Barrier In Front of Hot Water Closet Behind Bathtub

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Photograph 42- General View of Hot Water Heater Closet with Torn Out Drywall and Visible Plumbing Repair to Cold Water Line to Bathtub Mixing Valve



Photograph 43- Visible Debris with Wet Sill Plate from Water Leak to Hot Water Line Fitting to Bathtub Mixing Valve Above Shown in Photo 45

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Photograph 44- Closer View of White PVC Repair to Cold Water Line Serving Bathtub Mixing Valve- Note: Hot Water Polybutylene Line to Right and Dark Visible Mold Growth on Drywall in Corner to Left



Photograph 45- Water Leak/Weeping Fitting To Hot Water Line Serving Bathtub Mixing Valve

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Photograph 46- Closer View of Water Drip Footprint on Sill Plate Beneath Hot Water Line Shown in Photo 45

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Photograph 47- View of CPVC Water Line Repair for Line Serving Hot Water Heater with Visible Scattered Visible Mold Growth on Drywall- This Mold Was Caused By Water Leak Events that Occurred in the Hot Water Heater Closet

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Photograph 48- Pressure Relief Valve to Hot Water Heater Piped to Bathtub Drain Line



Photograph 49- Dry Moisture Meter Reading from Floor of Hot Water Heater Closet

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Photograph 50-Dry Moisture Meter Reading from Remaining Drywall to Right of Bathtub

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Photograph 51- Dry Moisture Meter Reading from Cross Brace Holding Bathtub Mixing Valve



Photograph 52-Water Stains Around HVAC Supply Vent in Hallway to Bathroom, Laundry Closet and Hot Water Heater Closet



Photograph 53- Crawl Space Door on East/Southeast Side of House



Photograph 54- General View of Crawl Space with Contents Debris and No Vapor Barrier Over Soil

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Photograph 55- View of North/Northwest Foundation Wall Below Grade with Visible Evidence of Water Infiltration- Water Stains and White Efflorescence and Muddy Soil



Photograph 56-Wet Crawl Space Soil

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Photograph 57- Visible Mold Growth on Floor Joists in Vicinity of Wet Foundation Conditions Shown in Photo 55



Photograph 58- Visible Water Stains/Damage and Mold Growth to Subfloor Beneath Hot Water Heater Closet with Bathtub Drain To Left and Drain to Containment Pan to Right

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Photograph 59- View of Water Stain/Damage and Mold Growth on Subfloor Migrating From the Hot Water Heater Closet on Left to the Master Bedroom on Right

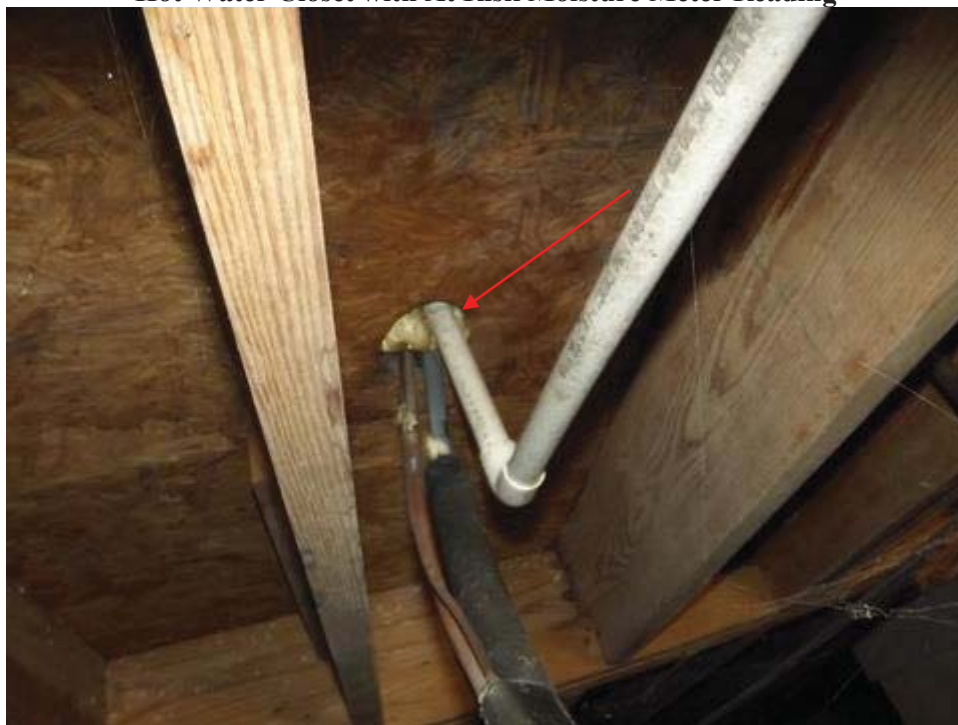


Photograph 60- At Risk Moisture Meter Reading From Subfloor in Crawl Space

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Photograph 61- Visible Water Stain and Mold Growth on Subfloor and Floor Joist Next Beneath Hot Water Closet with At Risk Moisture Meter Reading



Photograph 62- HVAC Condensate Drip Line with No Visible Water Stains on Subfloor Around Opening

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Photograph 63- Collapsed Water Damaged Subfloor Beside (Right) and Behind Toilet with Visible Water Stains and Mold Growth



Photograph 64- Collapsed Water Damaged Subfloor Beside (Left) and Behind Toilet with Visible Water Stains and Mold Growth

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Photograph 65- Wet Moisture Meter Reading from Bathroom Subfloor in Front of Toilet with Mold Growth- Note: Toilet Drain Line to Right



Photograph 66- At Risk Moisture Meter Reading from Floor Joist Beneath Bathroom with Visible Mold Growth on Subfloor and Floor Joist

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Photograph 67- At Risk Moisture Meter Reading from Subfloor with Mold Growth Near Drain Line to Bathroom



Photograph 68- Water Inside Tire Beneath Toilet

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Photograph 69- Clothes Dryer Vent Exhausting to Crawl Space